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# Molecular probes for identifications of raptors

## *by D. Parkin*

Research into the Red Kite *Milvus milvus* at Nottingham resulted in the isolation of a clone DNA that is inherited in a sex-limited fashion. It reveals a multi-band profile that is transmitted *more or less* faithfully from mother to daughter. This 'matrilineal' pattern is typical for DNA that is sited on the female-specific (W) chromosome. Analysis of a series of unrelated female kites from Germany and Spain revealed that there were 20 different patterns among 27 nest sites. There was no evidence of a common pattern between the two regions.

A long series of females from Wales revealed only two profiles, suggesting that this population is distinctly less variable. This finding is supported by the analysis of multi-locus DNA profiles in kites from these three regions.

A single locus was analysed using an oligonucleotide probe. The number of alleles detected was significantly less in the birds from Wales, whereas those from Germany and Spain did not differ.

All these results suggest that Red Kites from Wales are genetically depauperate.

Interestingly, a southern isolate of the Welsh populations revealed a significant difference in genetic structure. First, the two matrilines differed in relative frequency, and second, the single locus data differed. The rarer of the matrilines was very similar to a German profile, suggesting the possibility that a bird from this region had

colonised South Wales at some time close to the date of spread from the traditional range in mid-Wales.

In the late 1980s, it was decided to attempt to re-establish the Red Kite into an area of southern England from which it has been absent for over a hundred years. Blood samples were taken from the released birds which were also marked with rings and patagial (wing) tags. When breeding commenced, the identity of pairs was determined visually, and their success monitored. Blood samples taken from the nestlings permitted confirmation of identity and parentage.

Although numbers were very small, evidence suggested that birds from Wales bred later and were less successful than the main release from Spain. This supports the hypothesis that the Welsh birds are not only less variable (inbred) but also less successful (inbreeding depression). Supporting evidence will be presented, and recommendations made for future releases in any re-introduction programme.

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# X-raying the Gods: what were the mummified Horus falcons of Egypt?

*by D. A. Russell, B. Galeb & R. Hoath*

As part of the Egyptian Exploration Society (U.K.) investigation of the social and temporal context of the Sacred Animal Necropolis at Saqqara, Egypt, in 1992, 1994 and 1995, identification to species level was attempted for some 200 mummified 'falcons'. These were amongst the hundreds of thousands deposited in underground galleries from c. 600BC to 100AD by devotees of the religious cult of Horus worship. Many of the remains were in poor condition, partly as a result of the 'hot dipping' method of mummification used and partly because of the age and condition of the material at the time of its mummification (many specimens were partial skeletons, mixed species or other material, e.g. eggshells, twigs or shrews).

Identification by manual unwrapping was both laborious and destructive, owing to the friable nature of the material, and the wrapping of some specimens was too fine to permit destructive sampling. Consequently, a sub-sample of mummies was X-rayed on site. A portable army field machine, manufactured by the Massiot Society, was operated at 10 mA and 60 kV by Drs R. and M. Lichtenberg with the kind permission of the Mission Archéologique Française du Bubasteion. Apart from the need for accurate scaling,